Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in theh application.

Listing of Claims:

Claims 1-26 (Cancelled).

27. (New) A method of producing first and second aspheric surfaces on a precision optical element having a radial dimension, comprising the steps of:

forming said first aspheric surface on said element;

forming on a vacuum chuck, a support surface having a width in its radial direction less than 50% of said radial dimension of said element, and having an aspheric form matching that of said first aspheric surface formed on said element; and

subsequently forming said second aspheric surface on said element while it is held with said first aspheric surface in said vacuum chuck.

28. (New) A method of producing first and second aspheric surfaces on a precision optical element according to claim 27, and wherein at least one of said steps of forming said first aspheric surface and of forming said second aspheric surface of said element comprises a machining step.

29. (New) A method of producing first and second aspheric surfaces on a precision optical element according to claim 27, and wherein said step of forming on a vacuum chuck a support surface comprises a machining step.

30. (New) A method of producing first and second aspheric surfaces on a precision optical element according to claim 27, and also comprising the step of machining a diffractive optics pattern on at least one of said aspheric surfaces.

31. (New) A method of producing first and second aspheric surfaces on a precision optical element according to claim 27, and wherein the precision of said optical element is such that the maximum peak to valley irregularity of at least one of said first and second surfaces is less than one wavelength of red Helium-Neon laser light.

32. (New) A method of producing first and second aspheric surfaces on a precision optical element according to claim 27, and wherein the volume inside of said support surface of said vacuum chuck accommodates a vacuum.

33. (New) A method of producing first and second aspheric surfaces on a precision optical element according to claim 27, and wherein said vacuum chuck comprises at least one passage within said support surface which accommodates a vacuum.

34. (New) A method of producing first and second aspheric surfaces on a precision optical element, comprising the steps of:

forming said first aspheric surface on said element;

forming on a vacuum chuck, a support surface having an aspheric form matched to said first aspheric surface formed on said element, said support surface having a major portion removed; and

subsequently machining said second aspheric surface on said element while it is held with said first aspheric surface in said vacuum chuck.

35. (New) A method of producing first and second aspheric surfaces on a precision optical element according to claim 34, and wherein said step of forming said first aspheric surface of said element comprises a machining step.

36. (New) A method of producing first and second aspheric surfaces on a precision optical element according to claim 34, and wherein said step of forming on a vacuum chuck a support surface comprises a machining step.

37. (New) A method of producing first and second aspheric surfaces on a precision optical element according to claim 34, and also comprising the step of machining a diffractive optics pattern on at least one of said aspheric surfaces.

38. (New) A method of producing first and second aspheric surfaces on a precision optical element according to claim 34, and wherein the precision of said optical element is such that the

maximum peak to valley irregularity of at least one of said first and second surfaces is less than one wavelength of red Helium Neon laser light.

39. (New) A vacuum chuck for holding a precision optical element having a first aspheric surface, for single point machining of a second aspheric surface thereon, said chuck having a support surface on which said first aspheric surface of said element is seated, said support surface having an aspheric form matching that of said first aspheric surface of said element, wherein a major portion of said support surface is removed.

40. (New) A vacuum chuck according to claim 39, and wherein the volume formed radially inside of said support surface accommodates a vacuum.

41. (New) A vacuum chuck according to claim 39, and comprising at least one passage within said support surface which accommodates a vacuum.

42. (New) An optical system comprising at least one precision optical element, machined in a vacuum chuck according to claim 39.

43. (New) A vacuum chuck according to claim 39, and wherein said support surface is such that a major portion of said first aspheric surface of said element is unsupported.

44. (New) A vacuum chuck according to claim 39, and wherein said support surface having a major portion removed is such that said support surface and said first aspheric surface of said element are in contact only over a minor part of the complete area of said first aspheric surface of said element.